

Abstract

USE OF PHOTONIC BAND GAP STRUCTURES IN OPTICAL AMPLIFIERS

5 An optical amplifier uses a photonic band gap structure
having a doped core defining at least a first wavelength
range over which stimulated emission can occur after
excitation caused by the introduction of pump light. The
photonic band gap structure is designed to permit light
10 having energy corresponding to the wavelength range to be
transmitted only in selected directions, including along
the photonic band gap structure. The propagation down
the structure is one of a discrete number of possible
transmission directions for the photons resulting from
15 stimulated emission. This improves the pump efficiency,
as the stimulated emissions are concentrated into the
direction of propagation down the fiber.

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